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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,113	12/22/2000	Junji Tajime	DP-699 US	7901

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EXAMINER	
AZARIAN, SEYED H	

ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/742,113	TAJIME, JUNJI	
	Examiner	Art Unit	
	Seyed Azarian	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6,9-16,19-27,30-38,41 and 48* is/are allowed.

6)☒ Claim(s) *1-5,7,8,17,18,28,29,39,40 and 42-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 7-8, 17-18, 28-29, 39-40 and 42-47, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo (U.S. patent 6,259,739) in view of Keesman et al (U.S. patent 5,805,224).

Regarding claim 1, Kondo discloses a compressed moving picture re-encoding apparatus that has an input compressed moving picture stream, generated by compression encoding of moving picture data (column 15, lines 38-49, according to MPEG2 or like compression coding is performed to digital picture which digitized moving picture);

as an input signal, performs re-encoding at a pre-set average bit rate and at a variable bit rate, and has an output compressed moving picture stream whose bit rate has been changed as an output signal, comprising (column 12, lines 43-59, recording medium for moving picture variable bit rate coding program and generating code quantity and quantization scale);

means for computing a quantizer step size that is used in said re-encoding; and means for inputting said computed quantizer step size, and the quantizer step size in said input compressed moving picture stream, and outputting a quantizer step size that is used in actual re-encoding (column 20, lines 54 through column 21, line 7, the average quantization scale calculator 302 calculates the average values of the inter-frame quantization scales of such picture).

However Kondo is silent about "quantizer step size". On the other hand Keesman et al teaches controlling the step size of the quantizing means according to the output bit rate and the computed local target value (column 6, lines 38-49).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made, to modify Kondo invention according to the teaching of Keesman et al because it provides parameter fixing the distinct quantization step for a block of coefficients which is suitable for processing data with the MPEG standard and less complex picture to achieve a predetermined quality.

Regarding claim 2, Kondo discloses a compressed moving picture re-encoding apparatus that has an input compressed moving picture stream, generated by compression encoding of moving picture data, as an input signal, performs re-encoding at a pre-set average bit rate and at a variable bit rate, and has an output compressed moving picture stream whose bit rate has been changed as an output signal, comprising means for computing a quantizer step size that is used in said re-encoding, means for inputting said computed quantizer step size, and the quantizer step size in said input compressed moving picture stream, and outputting a quantizer step size that is used in actual re-encoding (column 21, lines 15-37, the use of a quantization scale set by the

above-described method enables to allocate a larger quantity of code to a frame having a larger amount of information).

Regarding claim 3, Kondo discloses a compressed moving picture re-encoding apparatus that has an input compressed moving picture stream, generated by compression encoding of moving picture data, means for computing a quantizer step size that is used in said re-encoding; means for inputting said computed quantizer step size, and the quantizer step size in said input compressed moving picture stream, and outputting a quantizer step size that is used in actual re-encoding and means for applying weighting, according to image characteristics, to the quantizer step size that is used in said re-encoding, and adjusting that quantizer step size (column 11, lines 28-46, quantity of code generated in each picture based on the bit streams generated by the bit stream generating step, an average quantization scale calculation).

Regarding claim 4, Kondo discloses a compressed moving picture re-encoding apparatus that has an input compressed moving picture stream, generated by compression encoding of moving picture data, as an input signal, performs re encoding at a pre-set average bit rate and at a variable bit rate, and has an output compressed moving picture stream whose bit rate has been changed as an output signal, comprising: means for computing a quantizer step size that is used in said re-encoding; means for inputting said computed quantizer step size, and the quantizer step size in said input compressed moving picture stream, and outputting a quantizer step size that is used in actual re-encoding means for applying weighting, according to image characteristics, to the quantizer step size that is used in said re-encoding, and adjusting that quantizer step size, and means for computing the ratio of the complexity measure in a prescribed period or number of pictures to the complexity measure of the object of re-encoding, using either or both of the

quantizer step size (column 18, lines 19-28, quantization scale of each frame, a complexity of a frame, and also column 26, lines 18-25, refer to ratio between the target bit rate and the real bit rate).

Regarding claim 5, Kondo discloses a compressed moving picture re-encoding apparatus that has an input compressed moving picture stream, generated by compression encoding of moving picture data, as an input signal, performs re encoding at a pre-set average bit rate and at a variable bit rate, and has an output compressed moving picture stream whose bit rate has been changed as an output signal, comprising means for computing a quantizer step size that is used in said re encoding, means for inputting said computed quantizer step size, and the quantizer step size in said input compressed moving picture stream, and outputting a quantizer step size that is used in actual re-encoding (see claim 1, and column 20, lines 54 through column 21, line 4, quantization scale is determined and intra-frame generated code quantities).

Regarding claim 7, Kondo discloses a compressed moving picture re-encoding apparatus that has an input compressed moving picture stream, generated by compression encoding of moving picture data, as an input signal, performs re encoding at a pre-set average bit rate and at a variable bit rate, and has an output compressed moving picture stream whose bit rate has been changed as an output signal, comprising, means for computing a quantizer step size that is used in said re-encoding; means for inputting said computed quantizer step size, and the quantizer step size in said input compressed moving picture stream, and outputting a quantizer step size that is used in actual re-encoding: means for computing, by using a maximum bit rate among said set bit rates and either or both of the quantizer step size and the number of bits of said input compressed moving picture stream, the maximum bit rate quantizer step size at said maximum

bit rate (column 22, lines 6-19, refer to function D correspond to minimum target bit rate and a maximum target bit rate).

Regarding claim 8, Kondo discloses a compressed moving picture re-encoding apparatus that has an input compressed moving picture stream, generated by compression encoding of moving picture data, as an input signal, performs re-encoding at a pre-set average bit rate and at a variable bit rate, and has an output compressed moving picture stream whose bit rate has been changed as an output signal, comprising: means for computing a quantizer step size that is used in said re-encoding; means for inputting said computed quantizer step size, and the quantizer step size in said input compressed moving picture stream, and outputting a quantizer step size that is used in actual re-encoding (column 27, lines 40-50, average quantization scales of the frames as coding object).

Regarding claim 17, Kondo discloses a compressed moving picture re-encoding apparatus that has an input compressed moving picture stream, generated by compression encoding of moving picture data, as an input signal, performs re-encoding at a pre-set average bit rate and at a variable bit rate, and has an output compressed moving picture stream whose bit rate has been changed as an output signal, comprising, means for computing a quantizer step size that is used in said re-encoding; means for inputting said computed quantizer step size, and the quantizer step size in said input compressed moving picture stream, and outputting a quantizer step size that is used in actual re-encoding (column 10, line 61 through column 11, line 20, refer to moving picture variable bit rate coding program based on the bit streams generating step).

Regarding claim 39, Kondo discloses the compressed moving picture re-encoding apparatus according to claim 17, further comprising means for applying weighting, according to

the image characteristics, to the quantizer step size of said input compressed moving picture stream used in said complexity measure computation, and adjusting that quantizer step size (column 18, lines 19-28, quantization scale of each frame, a complexity of a frame, and also column 26, lines 18-25, refer to ratio between the target bit rate and the real bit rate).

Regarding claims 18, 28, 29 and 40, recites similar limitation as claims 1 and 17, are similarly analyzed.

Regarding claims 42-45, recites similar limitation as claims 1 and 3, are similarly analyzed.

Regarding claims 46 and 47, recites similar limitation as claims 1 and 4, are similarly analyzed.

Allowable claims

3. The following is an examiner's statement of reasons for allowance.

The 6, is allowable due to the computing the respective complexity measures in two or more kinds of prescribed periods or numbers of pictures, using either or both of the quantizer step size and the number of bits of said input compressed moving picture stream; means for outputting a prescribed complexity measure from said plurality of complexity measures; means for computing the quantizer step size using said pre-set average bit rate and said output complexity measure; means for computing the average of the respective quantizer step sizes every prescribed period or number of pictures, according to the encoding prediction mode of said input compressed moving picture stream, using the quantizer step size of said input compressed moving picture stream; and means for computing an addition value for each encoding prediction

mode, using said quantizer step size and said average quantizer step size, and computing an addition quantizer step size in which an addition value has been added to said input compressed moving picture stream quantizer step size; wherein said addition quantizer step size is adjusted every prescribed period according to the difference (excess or deficiency) between the target number of bits and the actual number of bits.

These key features in combination with the other features of the claimed invention are neither taught nor suggested by the art of record.

Claims 9-16, 19 and 48, recite substantial very similar limitations as claim 6 above and is allowed for the same reason.

Thus claims 6, 9-16, 19-27, 30-38, 41 and 48 is allowable.

Other prior art cited

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. patent (5,657,015) to Nakajima et al is cited for method and apparatus of rate conversion for coded video data.

U.S. patent (6,535,251) to Ribas-Corbera is cited for video encoder and method for adjusting quantization step in real time.

U.S. patent (5,956,686) to Takashima et al is cited for audio signal coding/decoding method.

U.S. patent (6,173,012) to Katta et al is cited for moving picture encoding apparatus and method.

U.S. patent (5,933,451) to Ozkan et al is cited for complexity determining apparatus.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (703) 306-5907. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached at (703) 308-5246.

Any response to this action should be mailed to:

Assistant Commissioner for Patents
Washington, D.C. 20231

Or faxed to:

(703) 872-9306, ("draft" or "informal" communications should be clearly labeled to expedite delivery to examiner).

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to T.C. customer service office whose telephone number is (703) 306-0377.

Jayanti K. Patel
Primary Examiner

Seyed Azarian
Patent Examiner
Group Art Unit 2625
October 5, 2003